IN THE CLAIMS:

1. A programmable driver/equalizer for overcoming InterSymbol Interference (ISI) and other transmission impairments in a variety of transmission media, comprising:

    (a) a controllable driver set coupled to a transmission media;

    (b) a transversal filter receiving a data input signal and coupled to the transmission media, the filter having programmable filter coefficients; and

    (c) means for altering the frequency response of the controllable driver set to match the inverse of the frequency response of the transmission media.

2. The programmable driver/ equalizer of Claim 1 further comprising:

    (d) means providing constant output peak amplitude on the transmission media independent of the programmable filter coefficients.

3. The programmable driver/equalizer of Claim 1 further comprising:

    (e) logic means for switching the transversal filter and controllable drivers off high capacitance nodes when the programmable filter coefficients are inactive.

4. The programmable driver/equalizer of Claim 1 further comprising:

    (f) means for reducing the (ISI) of the controllable driver set when the programmable filter coefficient are active.

1   5.   The programmable driver/equalizer of Claim 1 further comprising:

2   (g)   means responsive to the programmable filter coefficients providing control

3 signals for matching the controllable driver set output to the inverse of the transmission media.

1   6.   The programmable driver/equalizer of Claim 1 further comprising:

2   (h)   means for storing a present data input signal bit and a history of at least

3 two past data signal input bits in the transversal filter.

1   7.   The programmable driver/equalizer of Claim 1 further comprising:

2   (i)   shift register elements in the transversal filter providing time delays in

3 processing the data input signal.

1   8.   The programmable driver/equalizer of Claim 1 further comprising:

2   (j)   buffer and latch means in the transversal filter for storing data input

3 signals in time sequence.

1   9.   The programmable driver/equalizer of Claim 1 wherein the transversal filter is

2 described by $H(Z) = Ab_0 + Ab_1Z^{-1} + AB_2Z^{-2} + \ldots AB_nZ^{-n}$ where numerical value of the

3 coefficients are set by register values in A and B coefficient setting circuits connected to the

4 transmission line.

1   10.   The programmable driver/equalizer of Claim 1 wherein the transversal filter is a

2 finite infinite response (FIR) filter.

1   11.   The programmable driver/equalizer of Claim 1 wherein the controllable driver set

2   comprises weighted current drivers.

1   12.   The programmable driver/equalizer of Claim 1 wherein the transversal filter

2   controls the activation of the controllable driver set.

1   13.   The programmable driver/equalizer of Claim 1 wherein the programmable filter

2   coefficients are set based on the characteristics of the transmission media, speed of transmission,

3   and characteristics of a receiving unit.

1   14.   The programmable driver/equalizer of Claim 1 wherein the coefficients of the

2   filter are altered in small increments and matched to each other.

1   15.   The programmable driver/equalizer of Claim 1 wherein the driver out peak

2   amplifier is constant, independent of programmable coefficient selection.

1   16.   A method for overcoming InterSymbol Interference (ISI) and other various

2   transmission impairments in a variety of transmission media, comprising the steps of:

3   (a)   connecting the controllable driver set to an input node and to a transversal

4   filter including programmable coefficients;

5   (b)   biasing the controllable driver set for constant output peak amplitude,

6   regardless of coefficient settings; and

7   (c)   altering the coefficients of the transversal filter to vary the driver set

8   output to provide a frequency response which is the inverse of the transmission medium.

1   17.   The method of Claim 16 further comprising the steps of:

2   (d)   storing digital input pulses in the transversal filter as time delay units.

1   18.   The method of Claim 16 further comprising the steps of:

2   (e)   enabling power settings of the controllable driver set to be used for all

3   possible coefficient possibilities.

1   19.The method of Claim 16 further comprising the step of:

2   (f)   reducing self-induced intersymbol interference from the drivers by the

3   drive strength of the output stage.

1   20.   The method of Claim 16 further comprising the steps of:

2   (g)   switching off paths to high capacitance nodes in the driver circuit when

3   the coefficients are inactive to minimize ISI.

1   21.   The method of Claim 16 further comprising the steps of:

2   (h)   selecting a combination of control bits for the coefficient setting means to

3   select the appropriate frequency response for the driver according to the various transmission

4   medium conditions.

1   22.   The method of Claim 16 wherein the controllable driver set is plural current mode

2   differential drive circuits.

1   23.   A program medium, executable in a computer system, for overcoming

2   InterSymbol Interference (ISI) and other transmission impairments in a variety of transmission

3   media, the medium comprising:

4   (a)   program instructions in the medium for connecting the controllable

5   driver set to an input node and to a transversal filter including programmable coefficients;

6   (b)   program instructions in the medium for biasing the controllable driver set

7   for constant output peak amplitude, regardless of coefficient settings; and

8   (c)   program instructions in the medium for altering the coefficients of the

9   transversal filter to vary the driver set output to provide a frequency response which is the

10   inverse of the transmission medium.

1   24.   The program medium of Claim 23 further comprising:

2   (d)   program instructions in the medium for storing digital input pulses in the

3   transversal filter as time delay units.

1   25.   The program medium of Claim 23 further comprising:

2   (e)   program instructions in the medium for enabling power settings of the

3   controllable driver set to be used for all possible coefficient possibilities.

1   26.   The program medium of Claim 23 further comprising:

2   (f)   program instructions in the medium for reducing self-induced intersymbol

3   interference from the drivers by the drive strength of an output stage.

1   27.   The program medium of Claim 23 further comprising:

2   (g)   program instructions in the medium for switching off paths to high

3   capacitance nodes in the driver circuit when the coefficients are inactive to minimize ISI.

1   28.   The program medium Claim 23 further comprising:

2   (h)   program instructions in the medium for selecting a combination of control

3   bits for the coefficient setting means to select the appropriate frequency response for the driver

4   according to the various transmission medium conditions.

1   29   The programming medium of Claim 23 further comprising:

2   (i)   program instructions in the medium for biasing the controllable driver set

3   for constant output peak amplitude, regardless of coefficient settings; and

4   (j)   program instructions in the medium for altering the coefficients of the

5   transversal filter to vary the driver set output to provide a frequency response which is the

6   inverse of the transmission medium.

1   30.   The programming medium of Claim 23 further comprising:

2   (k)   program instructions in the medium for storing digital input pulses in the

3   transversal filter as time delay units.

4   31.   The programming medium of Claim 23 further comprising:

5   (l)   program instructions in the medium for enabling power settings of the

6   controllable driver set to be used for all possible coefficient possibilities.

1   32.   The program medium of Claim 23 further comprising:

2   (m)   program instructions in the medium for reducing self-induced intersymbol

3   interference from the drivers by the drive strength of the output stage.